

• CHANCE CONSTRUCTION TOOLS

• TIPS HOT LINE MAINTENANCE TOOLS

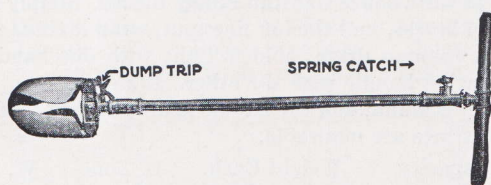
The prices given here are net prices subject to change without notice.

TERMS: 30 Days Net.

F. O. B. Destination on 100 lbs. or more.

F. O. B. Factory on less than 100 lbs. Factory Centralia, Mo.

CHANCE TELESCOPIC TRIP AUGER

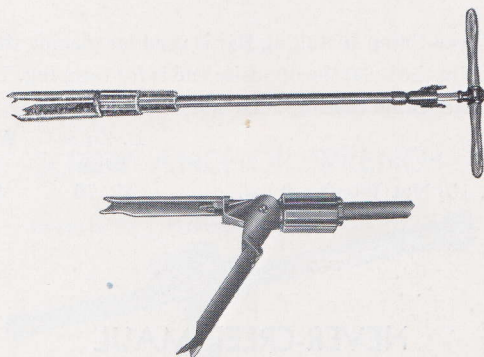


The Heavy Telescoping Auger is equipped with a quick action dumping mechanism and telescopic handle. Adjustable reamer blade for increasing hole size.

Malleable castings. Tempered steel blade. Hickory handle.

Cat. No.	Diameter of Holes Bored, inches	Net. Wt., Pounds	E. Zone Price	W. Zone Price
812	8 — 12 3/4	28	\$10.00	\$11.25
610	5 3/4 — 7 3/4	26	10.00	11.25

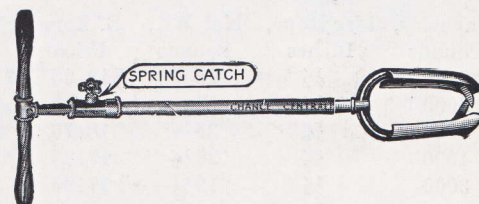
SMALL TRIP AUGER



An Auger that can be used very effectively for installing small anchors. A twist of the collar releases the blades, letting dirt fall out. This auger is equipped with telescopic handle which is released with a lever at the top. When the blades become dull they can be sharpened or replaced with new blades. This auger can also be used to bore a pilot hole for a larger screw anchor.

Cat. No.	Hole Size, inches	Weight, lbs.	Length, ft.	E. Zone Price	W. Zone Price
381	3 3/4	26	11 in.	\$11.10	\$12.50

NON-TRIP AUGERS



The Chance-Iwan Non-Trip Auger has pressed steel blades specially constructed for quick, easy cutting. It has the Chance telescoping handle that permits an extra three foot extension. Cast parts are malleable iron. Blades are steel. Handle of seasoned second growth hickory.

Cat. No.	Description	Wt. lbs.	Ea. Size, ins.	E. Zone Price	W. Zone Price
4A	Less Telesc. Han.	7	4	\$ 3.30	\$ 3.45
5A	With Telesc. Han.	20	5	7.80	8.75
6A	With Telesc. Han.	23	6	7.80	8.75
7A	With Telesc. Han.	24	7	7.80	8.75
8A	With Telesc. Han.	25	8	7.80	8.75
10A	With Telesc. Han.	26	10	7.80	8.75
12A	With Telesc. Han.	30	12	11.10	12.50

LINEMEN'S SOCKET WRENCH



Linemen's Socket Wrenches fit the heads and nuts of all standard bolts used for pole and guy work. They are drop forged and can also be used as hammers.

Cat. No.	For Nut Size, inches	Net Wt., Pounds	E. Zone Price	W. Zone Price
154	5/8 and Smaller	2 1/2	\$ 3.00	\$ 3.45
234	3/4 and Smaller	3 1/4	3.25	3.70

NEVER-CREEP EXPANDING AND TAMPING BAR

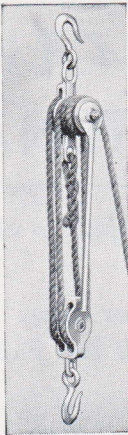


The Expanding and Tamping Bar fits around the rod and is used to expand anchors. Malleable casting and hickory handle.

Cat. No.	Length, feet	Net Wt., lbs.	Price
10	10	21	\$5.50
10H	10, Heavy	25 1/2	6.00
12	12	28	6.60
12H	12, Heavy	33 1/2	7.20

CAPSTAN PULLEY BLOCK

The Capstan Pulley Block is a light weight tool that is easy to handle. It has a leverage ratio of 32 to 1 and a pulling power of from 2,000 to 5,000 pounds, depending on the size of block used. There is no dangerous dangling chain, no heavy blocks or hooks to fall. Pulleys and drum are aluminum. Handle, housing and hooks are drop forged steel. Rope is manila.



Cat. No.	Capacity, Pounds	Size Rope, Inches	Net Wt., Pounds	E. Zone Price	W. Zone Price
2	2000	1/2	15	\$12.65	\$14.50
*2A	2000	1/2	13	11.85	13.50
4	4000	5/8	25 1/4	18.70	21.35
*4A	4000	5/8	20 1/2	17.35	19.75
22	3000	1/2	19 1/4	17.35	19.75
*22A	3000	1/2	16 3/4	15.95	18.20
44	5000	5/8	31 1/4	25.85	29.50
*44A	5000	5/8	25 3/4	24.75	28.25

*Without Rope.

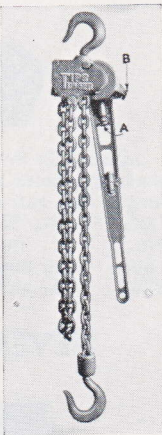
TIPS TUGGER

Tips Tugger is a light weight spur geared puller with ratchet handle and friction brake that holds the load securely at any point. With it, 43 pounds of pressure will lift a capacity load of 3/4 ton. All working parts of the mechanism and brake are fully enclosed and protected in the dust proof, grease-tight housing. Mechanism and bearings are packed with grease at the factory and sealed in this enclosure.

Simple button adjustments "A" and "B" free brake and ratchet mechanism permitting "free wheeling" to make easy connections.

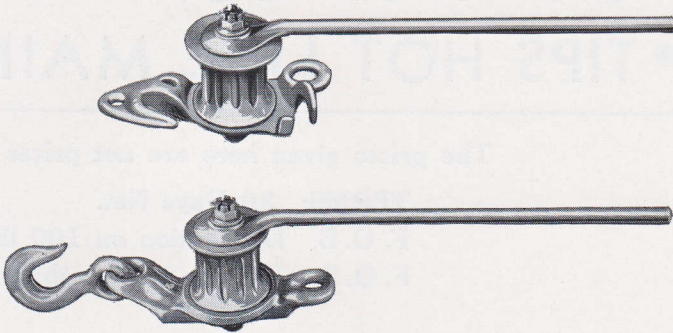
Gears are of the straight spur gear type with stub teeth. Pinion shaft and lift wheel are made of drop forged steel, heat treated to assure greatest possible strength. The ultimate strength of the welded steel chain is considerably in excess of five times capacity load.

Each Tips Tugger is tested to 50 % overload and guaranteed.



Cat. No.	Cap. ton	Std. Lift	Pull on Lever to Full Load	Net Wt. lbs.	Ship. Wt. lbs.	Min. Distance Between Hooks	Lgth. Lever	Lgth. Chain	Price
75T	3/4	5'	43 lbs.	17	18	9"	17 1/2"	5' 9"	\$33.00
150T	1 1/2	5'	50 lbs.	28	30	14"	17 1/2"	11' 6"	40.50

DETACHABLE CAPSTAN



Chance Detachable Capstans are operated in much the same way as the Chance Capstan Pulley Blocks. Simply hook into a set of blocks, pull the luff line taut, wrap it three times around the capstan drum, hold it tight with one hand and work the ratchet handle with the other. It's easy.

The drum is aluminum, the handle is drop-forged steel and the base castings are malleable.

Cat. No.	Capacity in Pounds	Weight Each, Pounds	E. Zone Price	W. Zone Price
3	2000	5	\$ 9.35	\$10.65
5	4000	11	15.40	17.55

NEVER-CREEP INSTALLING BAR



The Never-Creep Installing Bar is used for placing the plate in position in the hole; the opposite end is for tamping. Length, 10 feet. Malleable castings. Hickory handle.

Cat. No.	E. Zone Price	W. Zone Price
15; Net Weight, 9 lbs.....	\$2.75	\$3.15

NEVER-CREEP MAUL



The Maul is used especially for driving Never-Creep Rods. It has two wood faces and two iron faces.

Cat. No.	E. Zone Price	W. Zone Price
16; Net Weight, 12 lbs.....	\$2.20	\$2.55

REVERSIBLE POINT PIKE POLES

A new pike pole design with removable point that may be inserted into the Ferrule, point first, for carrying on the truck, thus eliminating the hazard of sharp projections. The gimlet or spiral point holds without slipping. When point becomes worn, replace point only—no need to buy complete new pike pole. Parts are: Steel point—malleable ferrules—and Douglas fir pole.

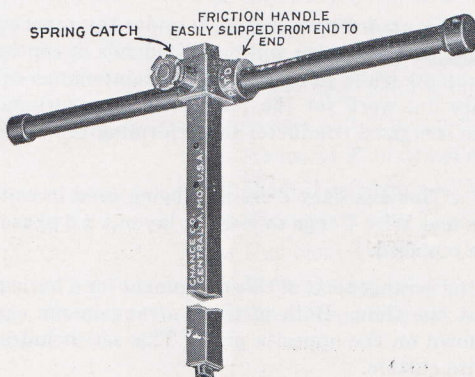


Cat. No.	Dia. & Length	Wt. Ea., Lbs.	Eastern Zone Price		Western Zone Price	
			1 to 12 Poles	12 Poles and over	1 to 12 Poles	12 Poles and over
210P	2" x 10'	8	\$ 3.30	\$3.00	\$ 3.50	\$3.20
212P	2" x 12'	9	3.65	3.35	3.86	3.56
214P	2" x 14'	11	4.12	3.78	4.37	4.03
216P	2" x 16'	13	5.27	4.83	5.57	5.13
218P	2" x 18'	15	5.80	5.32	6.15	5.67
220P	2" x 20'	17	6.26	5.75	6.65	6.14
F-2X	Ferrule		.55	.45	.60	.50
PP-2X	Pike Point		1.00	.95	1.10	1.00

A. T. & T. PATTERN

Cat. No.	Dia. & Length	Wt. Ea., Lbs.	Eastern Zone Price		Western Zone Price	
			1 to 12 Poles	12 Poles and over	1 to 12 Poles	12 Poles and over
212HP	2½" x 12'	12	\$4.47	\$4.10	\$4.74	\$4.37
214HP	2½" x 14'	14	5.55	5.09	5.87	5.41
216HP	2½" x 16'	16	6.42	5.88	6.78	6.24
218HP	2½" x 18'	18	7.49	6.86	7.90	7.27
220HP	2½" x 20'	20	8.35	7.65	8.80	8.10

SCREW ANCHOR WRENCH



The Screw Anchor Wrench gives ample leverage for turning a screw anchor into the ground. Steel and malleable.

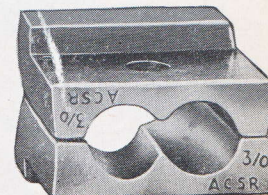
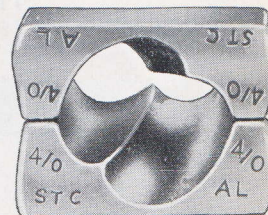
Cat. No. 600; Net Weight, 36 pounds..... Price \$9.00

SLEEVE TWISTER DIES

Chance Spiral Sleeve Twister dies are formed to fit the natural contour of the sleeve when twisting, resulting in a stronger and more durable splice than was possible with the old straight die. The sleeve is allowed to twist in the die to form a natural spiral end. Cutting and distortion of the sleeve is consequently eliminated and an unnatural bending of the cable is prevented.

Wide open end of die should be towards center of sleeve for twisting.

Dies are for figure eight shape, double and oval shape or single tube sleeves.



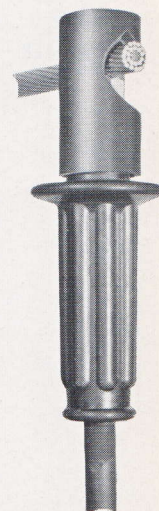
Cat. No.	Sol. Cu. Str. Cu.		ACSR No.	Wire Size All Alum.	Wt. per Pair, ozs.	[Price Less than 6
	No.	No.				
Std. 1	3	4	6	...	7	\$2.00
Std. 2	1	2	4	...	8	2.00
Std. 3	1/0	1	2	...	9	2.00
Std. 4	2/0	1/0	1	1/0	9½	2.00
Std. 5	3/0	2/0	1/0	2/0	10	2.00
Std. 6	4/0	3/0	2/0	3/0	11	2.00
Std. 7	...	4/0	3/0	4/0	13	2.00
Std. 8	...	250,000 CM	4/0	266,800 CM	14	2.00

TIPS INSULATED JUMPER CLAMPS

Safety engineers everywhere recommend the use of these insulated jumpers equipped with 5,000 volt rubber covered extra flexible cable for that extra protection to line-men doing general low voltage maintenance work.

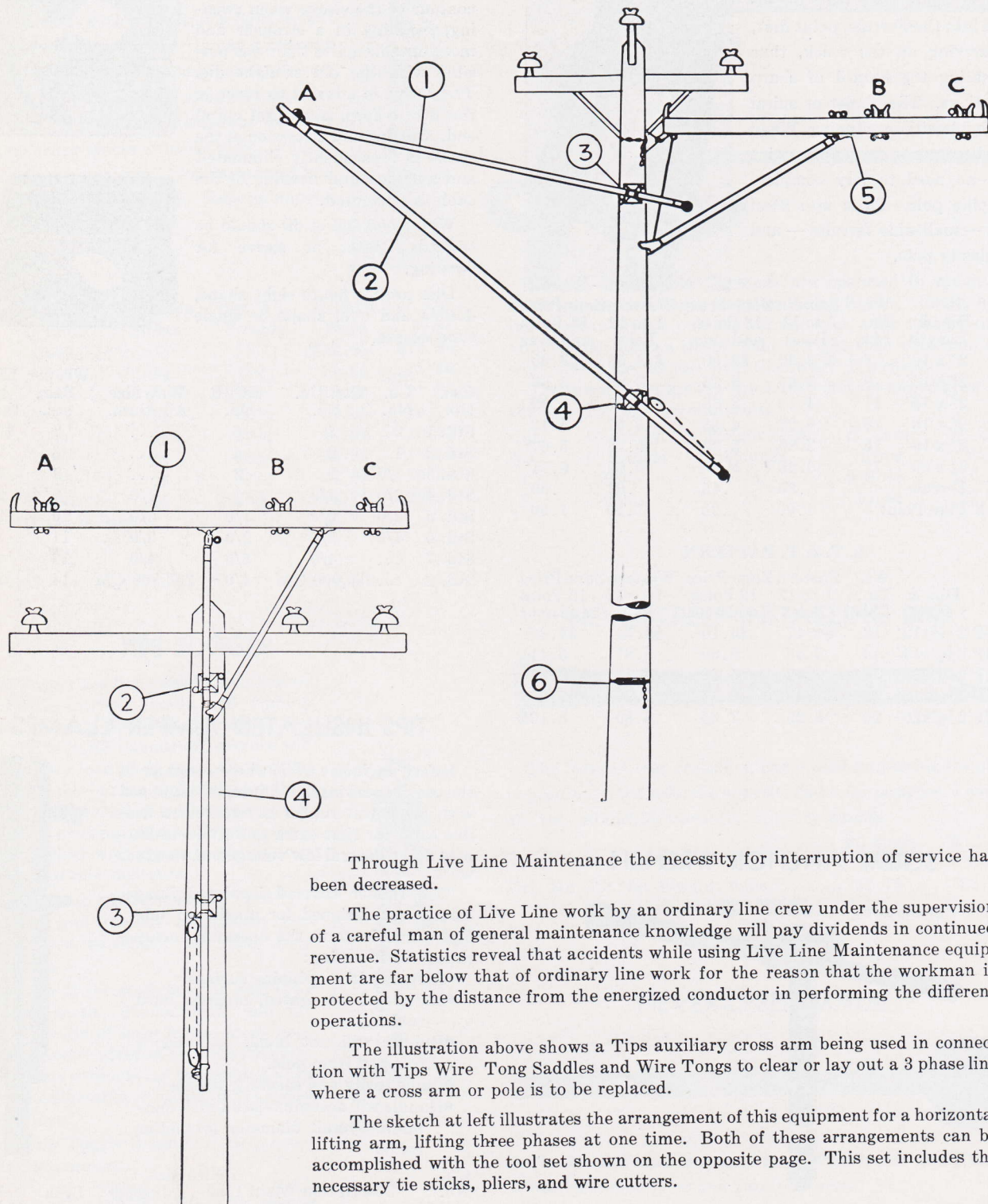
Tips rubber covered insulated jumper clamps are designed for maximum safety and convenience to the operator, incorporating the following:

- Large positive gripping surface.
- Handle of corrugated, medium hard rubber.
- Rubber will not break or crack if dropped from pole.
- Cable easily and securely attached.
- Handle will accommodate 1 inch maximum overall diameter grounding cable.



Cat. No.	Description	Wire Size		Jumper Lgth. 9"	Wt. 1¼ lbs. each clamp
		Main Line Min. No. 10 Solid Cu. to Max. 750,000 CM Str. Cu.	Jumper Max. 2/0 5000 volt		
G4767-2	Set of two jumper clamps only. No cable.				Price \$7.70

TIPS LIVE LINE MAINTENANCE EQUIPMENT

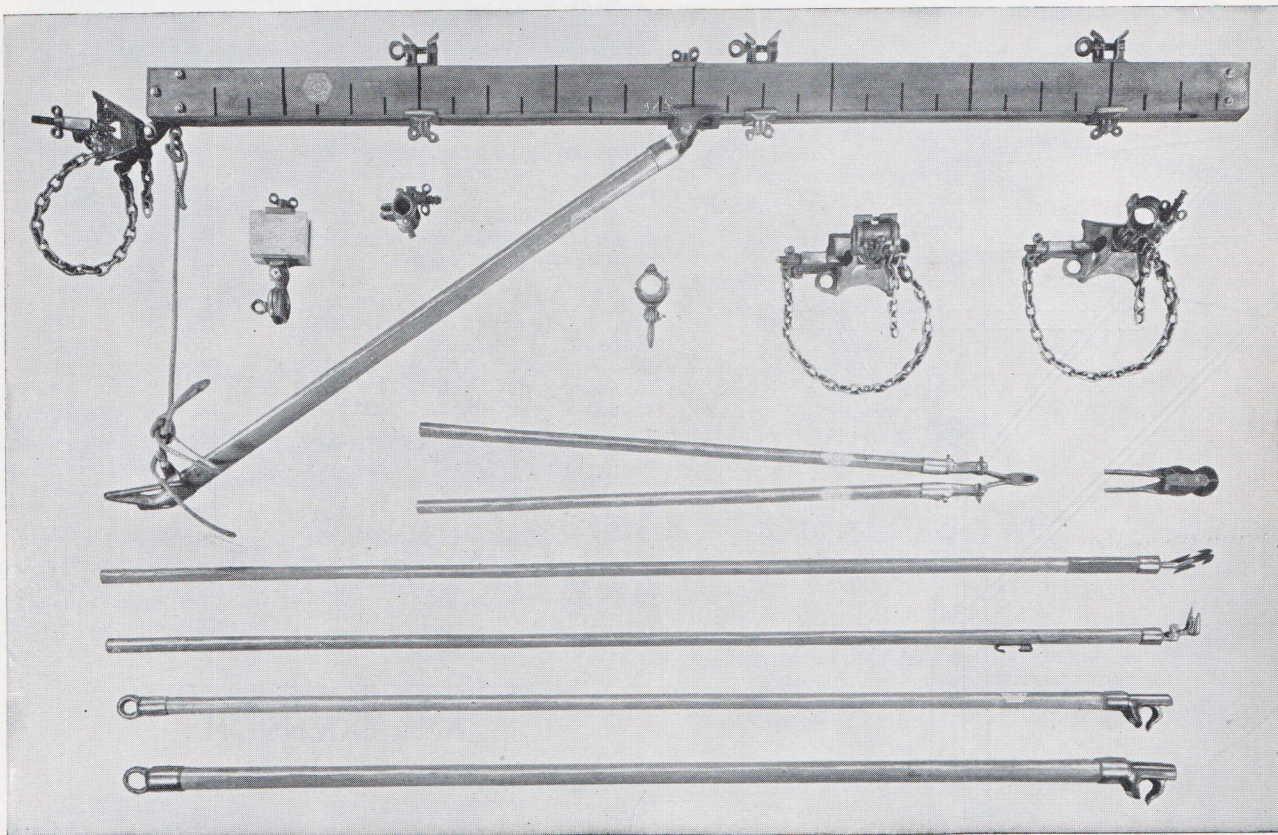


Through Live Line Maintenance the necessity for interruption of service has been decreased.

The practice of Live Line work by an ordinary line crew under the supervision of a careful man of general maintenance knowledge will pay dividends in continued revenue. Statistics reveal that accidents while using Live Line Maintenance equipment are far below that of ordinary line work for the reason that the workman is protected by the distance from the energized conductor in performing the different operations.

The illustration above shows a Tips auxiliary cross arm being used in connection with Tips Wire Tong Saddles and Wire Tongs to clear or lay out a 3 phase line where a cross arm or pole is to be replaced.

The sketch at left illustrates the arrangement of this equipment for a horizontal lifting arm, lifting three phases at one time. Both of these arrangements can be accomplished with the tool set shown on the opposite page. This set includes the necessary tie sticks, pliers, and wire cutters.



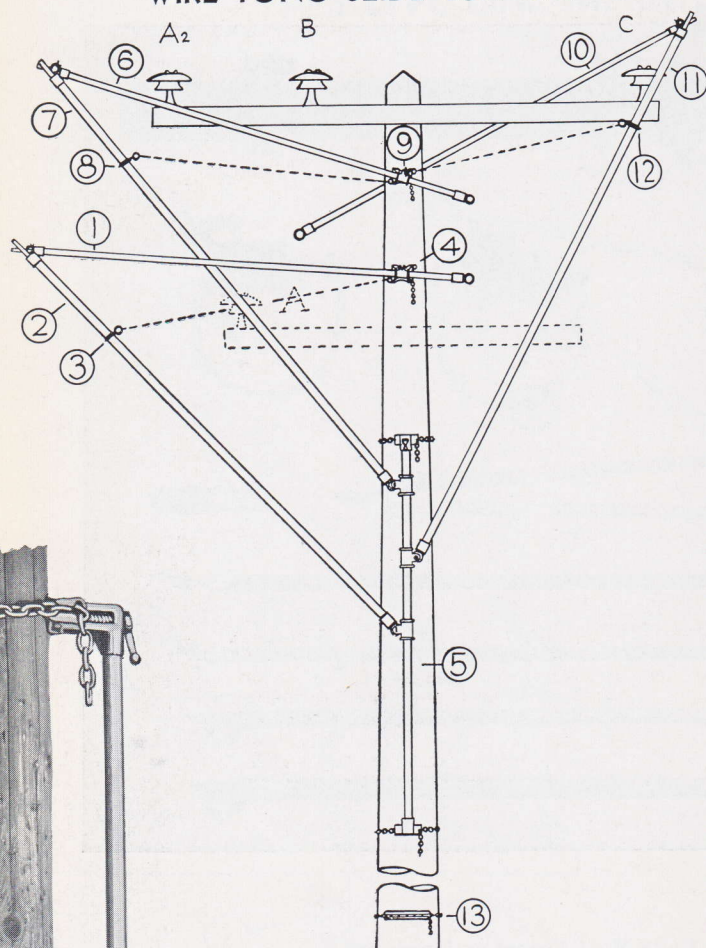
Maximum Span 300 Feet—Conductor Size Up to No. 1 Copper or Aluminum

Cat. No.	Description	Price
M4800-10	Tips Rural Tool Set Complete.....	\$184.25

EQUIPMENT INCLUDED IN ABOVE SET

M4800-1	Tips Auxiliary Cross-Arm, 8'-0" (3 holders).
M4800-12	Wire Tong Butt Swivel Holder for attaching Wire Tong to Cross-Arm
M4741-1	Tips 1½" Wire Tong Saddle Pole Clamp used on M4800-1.
M1729	Tips Wire Tong Band for 2" diameter Wire Tong.
M4740-4	Tips Saddle and Tightener for 2" diameter Wire Tong (2 Required).
M1861-1	Tips Insulated Plier Handles with 8" Pliers or 10" Cutter (Optional).
M1855-2	Tips Blade Tie Stick, 1¼" x 8' Laminated Spruce Pole.
M1760	Tips Universal Pole. Tie Wire Asst. 1¼" x 8'.
M4455-17	Tips Universal Tie Stick Head.
M4655-2	Tips Wire Tong, 1½" x 8', with Butt Swivel.
M4656-3	Tips Wire Tong, 2" x 12', with Butt Swivel.

TIPS WIRE TONG SET AND WIRE TONG SLIDE SUPPORT



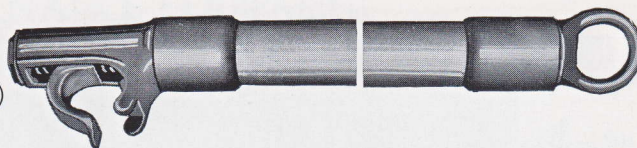
Another principle of Tips live linemaintenance is illustrated above showing the use of Tips wire tongs to hold conductors away from workmen. The lower tongs are fastened to Tips wire tong slide support. The tongs above that provide the outward thrust of the conductor are fastened to Tips wire tong saddle.

These tools are the fundamentals for live line maintenance. And with the addition of a few hand tools (tie sticks, etc.), a large variety of live line maintenance work can be done.

Tips Wire Tong Slide Support permits raising or lowering wire tongs to desired position. Seamless steel tubing and bronze fittings.

Catalog No.	Length of Slide Inches	Overall Length, Inches	No. of Holders	Net Wt., Pounds	Price
M1741-1	24	40	1	23 1/2	\$30.00
M1741-2	48	72	3	35	45.00
M1741-3	48	76	4	38 1/2	51.00
M1741-4	72	96	3	39 1/2	47.00
M1741-5	72	100	4	43	53.00
M1741-6	72	108	6	51	66.00

TIPS WIRE TONGS



For use in moving conductors to safe position for working. Laminated spruce poles with bronze fittings. Easily and quickly applied, no locking on the conductor or rotating out of position. Strong, safe, light weight.



Cat. No.	Pole Size	Overall Length	Net Wt., lbs.	Price
M4655-2	1 1/2" x 8'	8' 8 1/2"	5 1/2	\$20.25
M4656	2" x 8'	8' 8 1/2"	10 1/2	27.10
M4656-1	2" x 10'	10' 8 1/2"	11 1/2	29.00
M4656-3	2" x 12'	12' 8 1/2"	13	30.90

Cat. No.	Pole Size	Overall Length	Net Wt., lbs.	Price
M4657	2 1/2" x 10'	10' 9 1/2"	17 1/2	\$34.65
M4657-1	2 1/2" x 12'	12' 9 1/2"	19 1/2	37.05
M4657-2	2 1/2" x 14'	14' 9 1/2"	21 1/2	39.45

Cat. No.	Description	Wt., lbs.	Price
M1729-4	2" Pole Stirrup	2 1/2	\$4.50
M1729-5	2 1/2" Pole Stirrup	4 1/2	5.00
M1729-6	3" Pole Stirrup	5 3/4	5.50

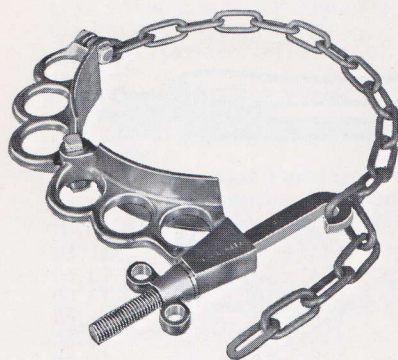
TIPS WIRE TONG SADDLE AND EXTENSION

Tips wire tong saddle fastens to the pole and holds wire tongs in position. A universal joint allows freedom of action for wire tongs without danger of binding. Tongs may beslid freely through the clamp until desired position is reached and clamped tight with wing nut. Furnished complete with chain or saddle only. A four-inch extension is possible by using the small bronze casting shown below saddle at right. Stirrup fitting is available for use with wire tong brace.



Cat. No.	Description	Wt., lbs.	Price
M4740-10	Saddle base only	8	\$15.00
M4740	Saddle with 1 1/2" clamp less chain tightener	6 3/4	10.75
M4740-1	Saddle with 2" clamp less chain tightener	7 1/4	12.50
M4740-2	Saddle with 2 1/2" clamp less chain tightener	9	13.00
M4740-3	Saddle with 1 1/2" clamp and tightener	10 3/4	20.00
M4740-4	Saddle with 2" clamp and tightener	11 1/2	21.75
M4740-5	Saddle with 2 1/2" clamp and tightener	13	22.25
M4740-6	4" saddle extension	1 1/2	3.30
M4740-7	8" saddle extension	3	3.85
M4740-11	Tong stirrup attachment	13 oz.	1.15
M4741-1	1 1/2" pole clamp only	2 lbs. 5 oz.	5.00

ROPE SNUBBING BRACKET



A safety method for snubbing block and tackle lines. Tightens around pole by use of wing nut. Loops provide independent rope attachments.

Cat. No.	Net Weight	Price
M1846	6 lbs.	\$9.90

TIPS INSULATED LINK STICKS



For use with hand line to provide insulation between line-man and conductor. Rounded clamp edges prevent damage to conductor. Clamp may be loosened slightly and position changed without dropping the load. High strength bronze castings and laminated poles.

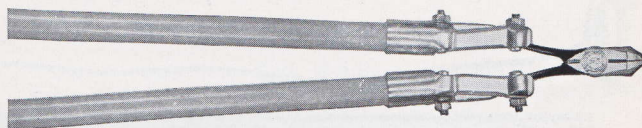
Cat. No.	Pole Size	Overall Length	Price
M4710	1½" x 4'	56¾"	\$17.25

POLE SPLICE

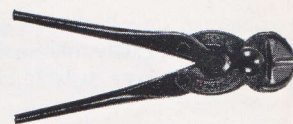


Cat. No.	Pole Size	Wt. lbs.	Price
M3355	1¼"	1¼	\$3.85
M3355-1	1½"	1½	4.65
M3355-2	2"	2	6.85
M3355-3	2½"	2½	7.50

INSULATED PLIER HANDLE AND CUTTERS



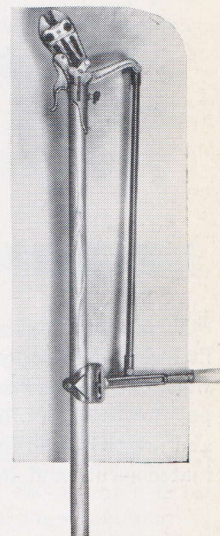
Tips plier handles provide a handy emergency tool. Pliers or cutters are easily secured to insulated handles by means of eye bolts. Laminated spruce handles, voltage tested.



Cat. No.	Description	Pole Size	Overall Length	Wt., lbs.	Price
M1861-2	1 pair handles only.....	1¼"x4'	4' 4½"	5½	\$ 6.85
M1861-4	Insulated handles with 10" cutters.....	1¼"x4'	5' 2"	7	11.00
M1861-1	Insulated handles with 8" pliers.....	1¼"x4'	4' 9"	6½	9.85

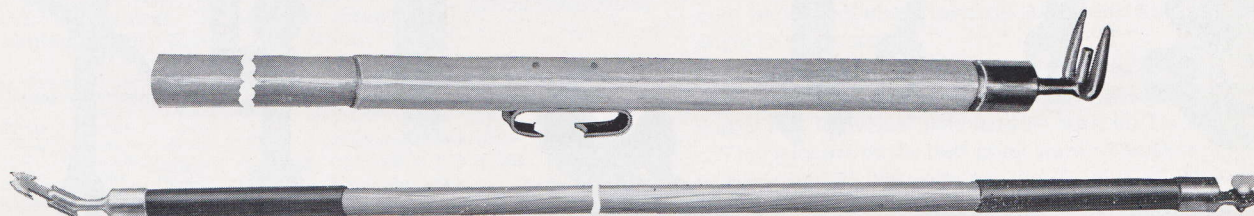
TIPS INSULATED WIRE CUTTERS

This new lever type cutter is easy to use and gives positive insulation to the operator because both pole and lever provide insulation. Made in two sizes—one for cutting 2/0 weather proof solid copper wire or 2/0 bare aluminum core steel reinforced wire and a heavy duty cutter for 2/0 weather proof stranded copper, 4/0 bare stranded copper and 4/0 bare aluminum core steel reinforced wire. Poles are laminated spruce, voltage tested. Lever attachment is a fiber sleeve.



Cat. No.	Pole Size	Overall Length	Approx. Wt., lbs.	Price
M1871-4	1¼" x 4'	4' 7"	5¼	\$15.00
M1871-6	1¼" x 6'	6' 7"	5¾	16.50
M1873-4	1½" x 4'	4' 8"	9¼	20.00
M1873-6	1½" x 6'	6' 8"	10	22.00

TIPS PRONG AND BLADE TIE STICKS



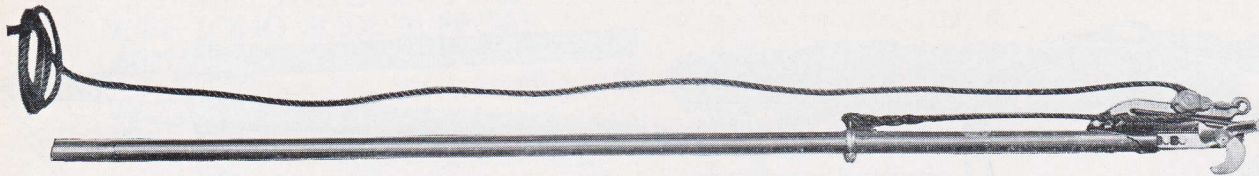
Prong type for tying or untying tie wires—can be used for various purposes—center finger makes short bends possible. Assistant on side of pole helps to pry loose tight ends.

Cat. No.	Description	Overall Length	Net Wt.	Price
M1855-1	1¼" prong tie stick with 18" fibre sleeve.....	8' 2"	3¼ lbs.	\$9.00
M1855-5	1¼" prong tie stick fibre sleeve and short offset prong head.....	8'	3 lbs.	9.00
M3002	Hand Guard for 1¼" tie stick.....	.....	4 ozs.	.55

Many prefer the blade type of tie stick because it gets into the tight places and makes a quick job of tying or untying. Furnished with universal head for attaching a variety of fittings.

Cat. No.	Description	Overall Length	Weight	Price
M1855-6	Blade tie stick.....	8' 6"	3½ lbs.	\$13.10

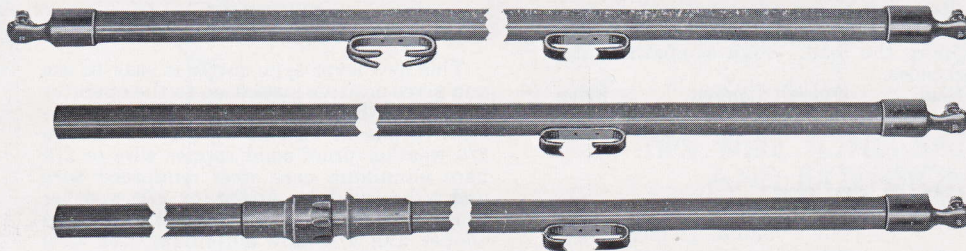
TIPS INSULATED TREE TRIMMERS



A light weight, easily operated cutter with powerful forged tool steel cutting jaws capable of cutting $1\frac{1}{4}$ " live wood.

A light weight, easily operated cutter with powerful forged tool steel cutting jaws capable of cutting 1 1/4" live wood.					Cat. No.	Description	Size	Wt., lbs.	Price
Cat. No.	Description	Size	Wt., lbs.	Price	M2006-2	Lever operated	1 1/2" x 6'	6	\$11.50
M2004	Rope operated	1 1/2" x 4'	6	\$ 9.00	M2008-2	Lever operated	1 1/2" x 8'	7	12.50
M2006	Rope operated	1 1/2" x 6'	7	10.00	M2010-2	Lever operated	1 1/2" x 10'	8	13.50
M2008	Rope operated	1 1/2" x 8'	8	11.00	M2012-2	Lever operated	1 1/2" x 12'	9	14.50
M2010	Rope operated	1 1/2" x 10'	9	12.00	M2014-2	Lever operated	1 1/2" x 14'	10	15.50
M2012	Rope operated	1 1/2" x 12'	10	13.00	M2016-2	Lever operated	1 1/2" x 16'	11	16.50
M2014	Rope operated	1 1/2" x 14'	11	14.00	M2034	Additional pole sections with splice ends	1 1/2" x 4'	2	3.40
M2016	Rope operated	1 1/2" x 16'	12	15.00	M2036		1 1/2" x 6'	3	4.40
M2020	Head only.....	4	7.00	M2038	1 1/2" x 8'		4	5.40	
				M2040	1 1/2" x 10'		5	6.40	
				M2042	1 1/2" x 12'		6	7.40	

TIPS UNIVERSAL POLES AND FITTINGS



With a few Tips universal poles and a variety of universal fittings, almost any of the odd jobs which arise in maintenance work can be performed without the necessity of carrying a pole for each tool. Fittings may be adjusted to many angles and are tightened by means of wing screws. Poles are laminated spruce and are available in the following combinations.

Cat. No.	Description	Pole Diam.	Pole Length	Weight	Price
M1760	With Tie Wire Assistant.....	$1\frac{1}{4}$ "	8'	3 lbs.	\$ 9.00
M1760-1	With Cotter Key Assistant.....	$1\frac{1}{4}$ "	8'	3 lbs.	9.00
M1760-2	With Tie Wire Assistant and Splice.....	$1\frac{1}{4}$ "	Two 4' lengths	3 lbs.	12.85
M1760-4	With Tie Wire and Cotter Key Assistant and two Universal Heads.....	$1\frac{1}{4}$ "	8'	5 lbs.	12.25
M1951	Tie Wire Assistant.....	...	...	4 oz.	1.05
M1951-2	Cotter Key Assistant.....	...	...	4 oz.	1.05

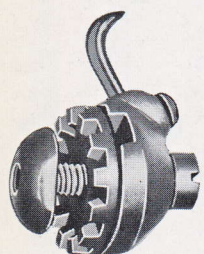


Fig. 0



Fig. 1



Fig. 3

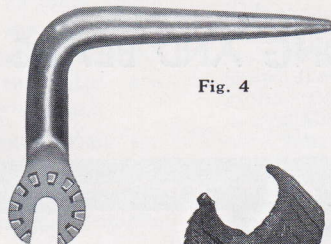


Fig. 4

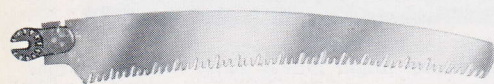


Fig. 2

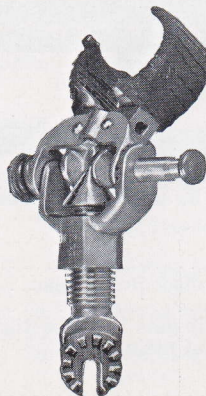


Fig. 5



Fig. 8

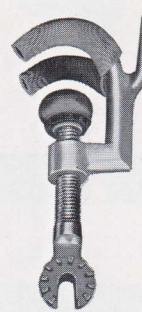


Fig. 9

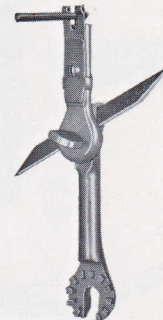


Fig. 10



Fig. 7



Fig. 6

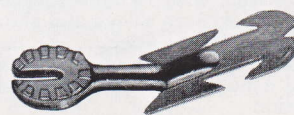


Fig. 11

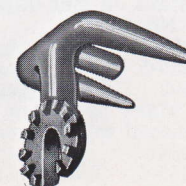


Fig. 12

Fig. 0—Universal Cotter Key Puller. For pulling cotter keys. Has means for retaining keys approximately $\frac{3}{16}$ " in diameter.
Cat. No. M4455-8.....Price \$4.60

Fig. 1—Cotter Key Replacer. Holds key securely for placing into position.
Cat. No. M4455-44.....Price \$2.20

Fig. 2—Universal Pruning Saw. A quick cutting saw for removing tree branches, etc., in vicinity of line conductors. Deep notched teeth, high speed, pull cut.
Cat. No. M4455-26.....Price \$3.85

Fig. 3—Universal Screw Driver. Ideal for a number of odd jobs where an insulated handle is needed.
Cat. No. M4455-28.....Price \$1.65

Fig. 4—Universal Locating Pin. Used as a drift pin for aligning bolt holes aiding in bolt or pin insertions.
Cat. No. M4455-15.....Price \$2.00

Fig. 5—Universal Fuse Puller. An all angle self aligning fuse puller head. Usable in a number of ways.
Cat. No. M4455-34.....Price \$7.15

Fig. 6—Insulated Fork Head. A red fiber fork with bronze universal fitting. Used to engage insulators where porcelain joins cap. For lifting or otherwise manipulating insulators.
Cat. No. M4455-49.....Price \$2.20

Fig. 7—Universal Disconnect. For use in opening and closing disconnect switches.
Cat. No. M4455-9.....Price \$0.75

Fig. 8—Universal Bolt Holder. For replacing pins and bolts. Bolt head fits into slot and is held tight by spring action. Will take bolts or pins up to $\frac{5}{8}$ " diameter.
Cat. No. M4455-2.....Price \$4.00

Fig. 9—Universal Plug Fuse Puller. To pull or replace plug type fuse cutouts. Projecting prong prevents rotation in tightening process. Rubber covered prongs and screw head protect porcelain. Recommended for use where neck of supporting knob does not exceed one inch.
Cat. No. M4455-4.....Price \$6.00

Fig. 10—Cotter Key Remover and Replacer. Double pointed steel bar facilitates removal of cotter keys. Extension has socket which holds key for replacement.
Cat. No. M4455-21.....Price \$4.50

Fig. 11—Blade Tie Stick Head. Excellent for undoing close ties.
Cat. No. M4455-40.....Price \$4.20

Fig. 12—Prong Tie Stick Head. For manipulation of tie wires. Especially handy where an extra tie stick is needed.
Cat. No. M4455-17.....Price \$1.35

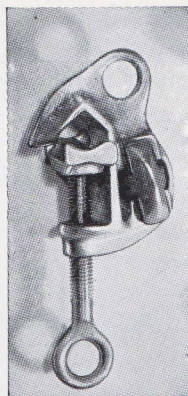
TIPS TAP-OFF CLAMP

Each Tips Perma-Grip tap clamp in every size has been carefully, scientifically proportioned to give the proper electrical conductivity, maximum mechanical strength and a pleasing symmetrical appearance. The current carrying capacity is in proportion to that of the maximum jumper wire for which each clamp is designed. Tests reveal a minimum yield point of 165 inch lbs. and an ultimate strength in excess of 260 to 500 inch lbs. (depending on size) applied torque on the eye screw.

The gripper is designed for three point contact with the conductor.

The U. S. S. threads on the high strength bronze eye screw permit quick, easy application, and a tight positive grip with greatly minimized danger of sticking due to corrosion.

Clamps with S. A. E. threads are available on request. If hexagon screws are wanted, specify this on your order.



Catalogue Series S1725.		MAIN LINE		JUMPER WIRE		Wt.,	Price
Type	Type of	Max.	Min.	Maximum	Minimum	per	Ea.
Nos.	Conne-					100	
CC	Cu to Cu	2/0str.	No. 6 Sol.	CU ACSR	CU ACSR	64	\$.68
GP	General Purpose	Copper	Copper	2 str. 3		64	.72

Catalogue Series S1730.		MAIN LINE		JUMPER WIRE		Wt.,	Price
Type	Type of	Max.	Min.	Max.	Min.	per	Ea.
Nos.	Conne-					100	
CC	Cu to Cu					55	\$0.90
CA	Cu to Al	300M CM	No. 4 Sol.	CU ACSR	CU ACSR	56	.95
GP	General Purpose	str. Copper	Copper	2/0 str.	No. 6 Sol.	95	.96
AA	Al to Al	2ACSR	No. 6 Sol.			55	.95
AC	Al to Cu	266,800 CM ACSR	ACSR	2/0 str.	No. 6 Sol.	56	.90

TIPS GRIP-ALL STICK



The Tips Grip-All Clamp Stick is safer, easier to handle and has more uses than any other clamp stick on the market.

To open the jaws it is necessary to release the safety catch. This operation calls to the operator's attention that he is opening the jaws and prevents him from doing it accidentally. Thus there is no danger of him accidentally dropping the load when it is engaged to the end of the stick. Safety catch closes automatically when jaws are closed. By simply sliding the hand grip along the handle it is possible to pull clamps, etc., into the end of the stick making a rigid connection. This makes it easy to hook the clamp over conductors without "fishing." Full universal action is obtainable and eye screw may be turned with Tips Grip-All Clamp Stick at a 0° to 90° angle to screw axis.

A special large ring attachment makes it possible to open and close large porcelain cutouts. Universal tool adapter makes it a Universal pole useable with all Universal fittings.

The poles are of the best grade hard wood thoroughly tested to withstand 75,000 volts per foot for five minutes. Castings are aluminum and bronze.

Cat. No.	Pole Dia. and Length	Overall Length	Net Wt., lbs.	Price
M1865-4	1 1/2" x 4'	4' 6 3/4"	4 1/2	\$15.50
M1865-6	1 1/2" x 6'	6' 6 3/4"	5 1/4	17.00
M1865-8	1 1/2" x 8'	8' 6 3/4"	6	18.50
M1866	Large ring attachment	.....	1	3.75
M1867	Universal tool adapter	.....	1 1/2	2.00

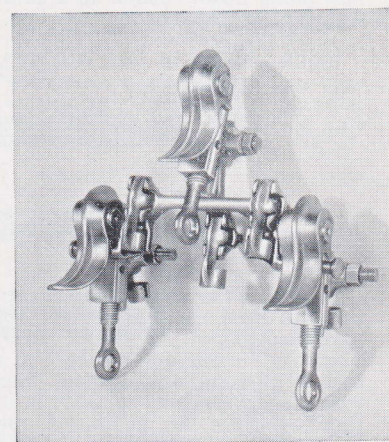
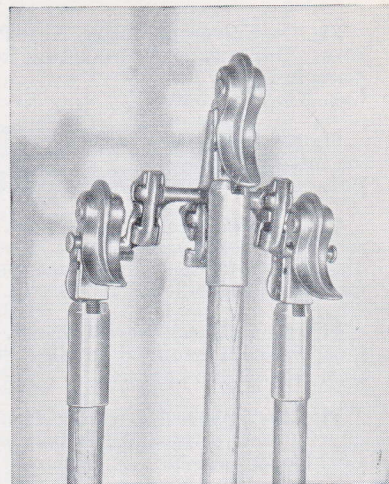
TIPS SAFETY SNAP-ON GROUNDING CLUSTER

Tips Snap-On mounted clusters eliminate the possibility of operator applying clusters by hand without the insulation protection of poles. This Snap-On Cluster is permanently mounted on 1 1/4" x 6' Laminated Spruce Poles tested to stand 75,000 volts per foot for five minutes. Tips grounding clamps are tested and proven to withstand amperage in excess of the maximum ampere rating for 2/0 grounding cable. The clamp bodies are aluminum. Duck bills and cable terminals are bronze. This cluster is made in two sizes as shown below, and is adaptable to aluminum or copper conductors.

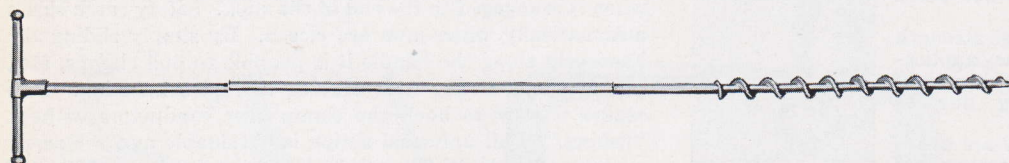
The unmounted Snap-On cluster can be applied with any clamp stick designed for use with eye screw clamps. We recommend the use of Tips Grip-All or Positive Grip Clamp Sticks. This cluster has the advantage of light weight and minimum bulk for easy handling and transportation. Duck bills and cable terminals are bronze, clamp bodies aluminum. For use on both aluminum and copper conductors. See catalog data below.

Cat. No.	Type Connection	Description	MAXIMUM WIRE SIZE Mainline Contact	SIZE Jumper Contact	Overall Length	Net Wt. Lbs.	Price
G3901	CU to CU	Cluster Mounted 1 1/4" x 6' Poles	400,000 CM STR CU	2/0	7'	13	\$36.57
	AL to CU		336,400 CM ACSR	Grounding Cable			
G3901-1	CU to CU		1,000,000 CM STR CU	2/0	7'	13	\$36.85
	AL to CU		900,000 CM ACSR	Grounding Cable			
G3803	CU to CU	Cluster	400,000 CM STR CU	2/0	13"	7	\$23.92
	AL to CU		336,400 CM ACSR	Grounding Cable			
G3803-1	CU to CU	Eye Screw	1,000,000 CM STR CU	2/0	13"	7	\$24.20
	AL to CU		900,000 CM ACSR	Grounding Cable			

When ordering cable with cluster, always specify size and voltage of cable, length of phase jumper and ground lead.



TIPS SCREW GROUNDING ROD



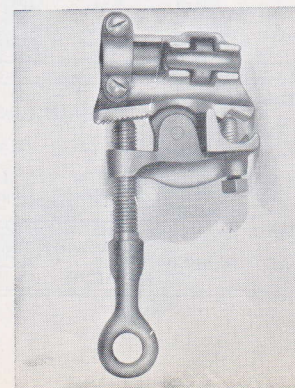
Easily installed by hand because spiral point bites quickly into earth and T handle gives auger like operation. Reduces ohmic ground resistance.

Cat. No. G3370; Rod diameter, 5/8"; Screw length, 24"; Overall length, 6' 2";
Weight, 15 lbs. Price \$9.35

TIPS GROUNDING ROD CLAMP

Will securely grip either flat or round surface. Jaw for flat surface is corrugated to bite through rust and lower resistance. Gripper for round surface makes three point contact. Prongs make it easy to attach to ground wire against pole.

Cat. No. G3620-1; Maximum Wire Size: Bus Bar, 1/2", Rod 3/4", Jumper, No. 1 Ex. Flex.
Weight, 1 lb. Price \$3.35



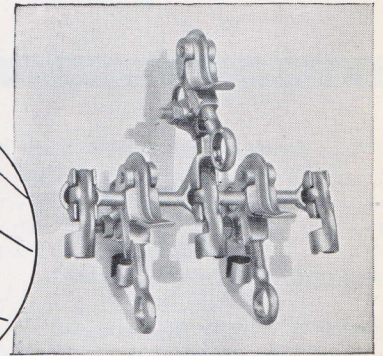
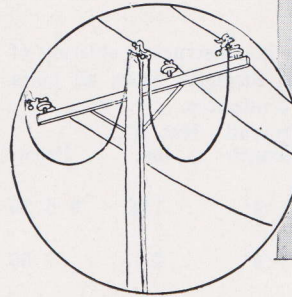
THREE WIRE STANDARD SET

When it is possible to dispense with service and work on cold lines, Tips grounding equipment should be used for extra protection to linemen. This equipment is made up in sets or clusters to handle various jobs.

The cluster at right is made for grounding on any three wire construction. It can be supplied as shown or with clamps mounted on poles. Single clamps mounted or unmounted are also available. Clamps and cluster bar are bronze. Poles are laminated spruce. See opposite page for ground rods, and ground rod clamps.

Always attach ground before hanging cluster on conductors.

	Price
Cat. No. G1710-3; Mounted on 1 1/4"x6' poles (less cable); Maximum Wire Size: Main Line, 4/0 Str. Cu., 3/0 ACSR, Jumper, No. 2 ground cable, Overall length, 6' 6"; Net Weight, 8 1/2 lbs.....	\$20.90
Cat. No. G1710-5; Eye screw for use with clamp stick (less cable); Maximum Wire Size: 4/0 Str. Cu., 3/0 ACSR, Jumper, No. 2 ground cable; Overall length, 8"; Net Weight, 4 1/2 lbs.....	8.70

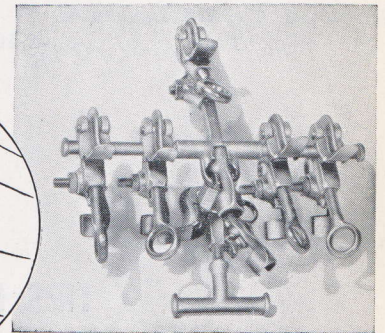
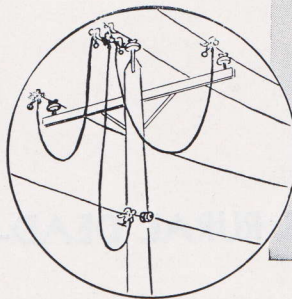


FOUR WIRE UNIVERSAL SET

This grounding cluster was designed for neutral grounding on four wire construction, but it has the distinct advantage of being convertible into two single jumper units without changing cable connections, or it may be used for grounding two, three or four wire systems. T handle clamp permits attaching to neutral wire by hand before hanging cluster on main line conductor.

Price

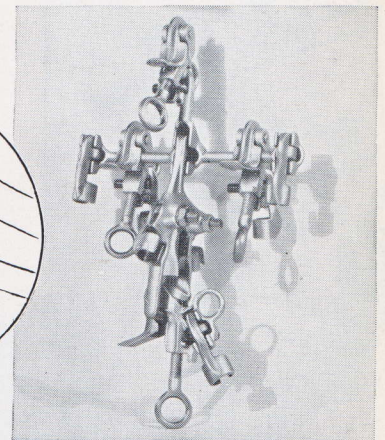
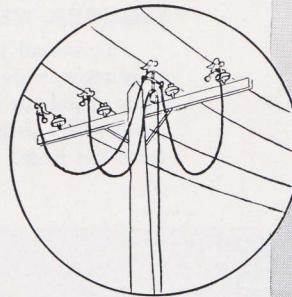
Cat. No. G1710-7; Eye screw ground cluster; Maximum Wire Size: Main Line, 4/0 Str. Cu., 3/0 ACSR; Jumper, No. 2 ground cable; Approx. Weight, 7 1/2 lbs.....	\$12.30
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FOUR WIRE STANDARD SET

This four wire ground cluster provides a method for grounding the entire system to a ground rod. It is convertible into a two or three wire grounding set and by simply changing cable contacts it can be used as a single jumper.

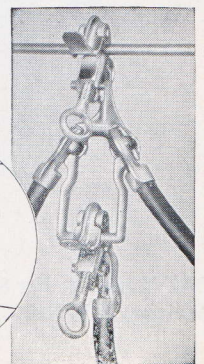
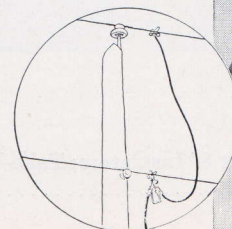
Cat. No. G1710-9; Eye screw ground cluster; Maximum Wire Size :Main Line, 4/0 Str. Cu., 3/0 ACSR, Jumper, No. 2 ground cable; Approx. Weight, 6 lbs.....	\$13.50
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TWO WIRE STANDARD SET

Where a majority of construction consists of single phase grounded neutral lines, this grounding set meets most requirements and is an inexpensive set easily within the means of a limited budget. Clamps are the same size as others shown on this page. The entire unit is cast of high strength bronze. A safety jumper set—no dangling clamps.

Cat. No. G1710-11; Single phase eye screw ground cluster; Maximum Wire Size: Main line, 4/0 Str. Cu. 3/0 ACSR, Jumper, No. 2 ground cable; Net weight, 3 lbs.....	Price.. \$6.50
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TIPS INSULATED DISCONNECT STICKS



Tips Insulated Disconnect Stick is constructed entirely of Insulated Materials, head of High Strength fibre, all poles tested at 75,000 volts per foot for 5 minutes.

Cat. No.	Mounted	Overall Length	Net Wt., lbs.	Price
M3046-5	1 1/4" x 4' Laminated Pole.....	4'	1 1/4	\$ 6.25
M3046-6	1 1/4" x 6' Laminated Pole.....	6'	2	7.55
M3046-8	1 1/4" x 10' Laminated Pole.....	10'	3	8.85
M3046-10	1 1/2" x 16' Laminated Pole.....	16'	8 1/4	10.50

TIPS AMERTONG

This new development is made for use with the Weston Model 633 Clamp Ammeter and makes it possible to measure current distribution on high voltage with absolute safety and to reach out for conductors that are otherwise hard to reach.

It combines safety with convenience. The operation is simple—the ammeter clamp is opened and closed by simply sliding the hand grip up and down the pole.

The spruce pole is tested to withstand 75,000 volts per foot for five minutes. The lever rod is laminated plastic. Castings are aluminum.

Cat. No.	Length	Weight	Price	
M1868-4	4'	3 lbs.	\$14.50	
M1868-6	6'	3½ lbs.	16.00	
P622-4	Canvas Carrying Bag Only for 4' Amertong.....			3.60
P622-6	Canvas Carrying Bag Only for 6' Amertong.....			4.50



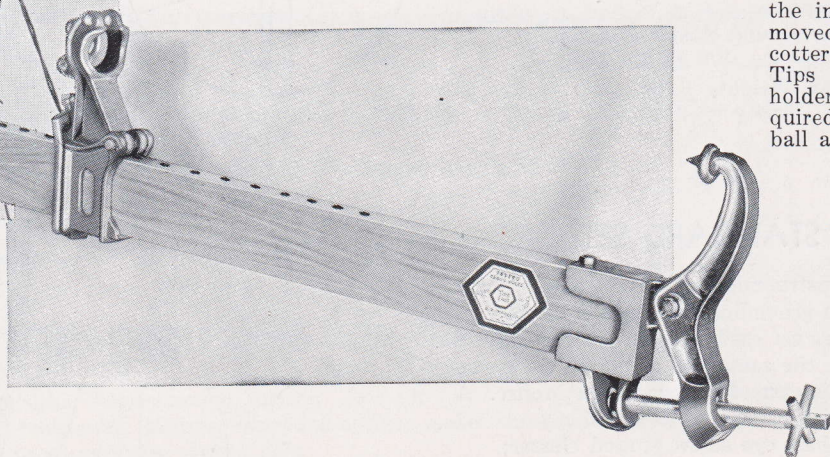
TIPS RURAL DEAD-END STRAIN CARRIER

No set of hot line tools is complete without the Tips Rural Dead-End Strain Carrier for changing out dead end insulators, etc. This new development has the advantage over other types, of being MUCH EASIER TO INSTALL, LIGHTER WEIGHT AND LESS EXPENSIVE.

To install the Tips Rural Strain Carrier simply slip the socket end on to the conductor, slide it into place over the insulator clevis, hook the other end into the back of pole or cross-arm and take up slack by turning the hand screw, either by hand or by using ratchet wrench. At all times, the operator is at a safe distance from hot lines.

After the strain is lifted from the insulators, they may be removed and replaced by using Tips cotter key puller and replacer and Tips insulator fork. Tips bolt holder and locating pin are required on jobs that do not have ball and socket or hook and eye type insulators. The hard maple board and high strength bronze castings give this Tips Strain Carrier unusual strength. Tests indicate a breaking load of 3,000 pounds or an operating load of 1,500 pounds.

Has twelve 1 1/4-inch adjustments.



Cat. No. M1843-5; For 8" Insulators; Take-Up, 4"; Minimum Capacity, Open, 17"; Maximum Capacity, Open, 38"; Weight, 20 1/2 lbs..... Price \$37.50